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AUSTRALIAN PLANT DISEASE RECORDER.

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Edited by:

K.E. Hutton, Biological Branch,
Department of Agriculture,
Box 36, G.P.O., Sydney.

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For confidential circulation to plant pathologists in Australia. PLEASE DO NOT ABSTRACT.

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COMMONWEALTH MYCOLOGICAL INSTITUTE
22 JAN 1958

PLANT DISEASE NOTES.

CEREALS AND GRASSES.

TURF DISEASES ON SYDNEY GOLF COURSES:

As reported by the writer (A.P.D.R. 7:4.41, 1955; 8:4.57, 1956) the two main diseases on golf greens in Sydney are brown patch (Rhizoctonia solani) and dollar spot (Sclerotinia homoeocarpa). A statistically designed fungicide testing experiment was carried out on one Sydney golf course during the 1956-57 summer.

The grass in all cases was Agrostis tenuis and the incidence of both diseases was low. Counts of dollar spot lesions ranged from 0 - 153 per plot, while brown patch did not occur on the experimental greens.

The results, assessed on counts of lesions, are indicated in the following table. Control was rated on a 0 - 10 basis; 0 indicating complete control of the disease and 10 indicating a spread of the disease with no apparent control.

Treatment	Application	Rate per 1,000 sq.ft.	Dollar Spot Control Rating
1. Corrosive sublimate + Calomel (1 : 1)	3 weekly	3 ozs.	1.0
2. Corrosive sublimate	3 weekly	1½ ozs.	4.0
3. Corrosive sublimate + Calomel (1 : 1)	4 weekly	3 ozs.	5.8
4. Corrosive sublimate	2 weekly	1 oz.	7.8

In treatments 1 and 3 the fungicide mixture was applied in fifty gallons of water, after which the green was lightly watered. In treatments 2 and 4 the corrosive sublimate was applied in ten gallons of water with no subsequent sprinkling.

The mercury treatments had a retarding effect on growth but no outward sign of injury was apparent.

The additive effect of calomel is clearly shown at the 3 weekly interval but it is apparently not active during the 4th week. (Compare treatments 1 and 2 with 3).

Department of Technical Education, Sydney. - D. REILLY.

FIELD AND FODDER CROPS.

VIRUS DISEASE OF SUBTERRANEAN CLOVER:

The desirability of adopting a common name for the widespread subterranean clover virus disease reported in recent years has been stressed by Wade (A.P.D.R., 9:1:3).

There seems little doubt that the disease, as it occurs in Tasmania, and for which Wade has suggested the name "Little leaf of subterranean clover", is similar to, if not identical with, that occurring on the mainland. The mechanism of transmission and the vectors appear to be the same, with Aphis craccivora being the most efficient vector in N.S.W.

The name suggested by Wade, would, it is considered, give rise to confusion between the subterranean clover disease and the leafhopper transmitted legume 'little leaf' disease (Hutton E.M. & Grylls N.E., A.J.A.R. 7:2: 85-97 1956). Attention has been drawn to this fact and Wade is agreeable to a more suitable name. Subterranean clover stunt, which has been used by the writers for some time, is proposed therefore as the accepted common name for the disease.

C.S.I.R.O.,
Canberra.

- N.E. GRYLLS

and

AGRICULTURAL RESEARCH INSTITUTE
Wagga Wagga. N.S.W.

F.C. BUTLER

RUGOSE LEAF CURL IN SOUTH EASTERN QUEENSLAND:

The importance of rugose leaf curl virus as a limiting factor in the growing of clovers in South Eastern Queensland (Grylls,N.E., J.A.I.A.S21: 187, 1955) is further stressed by the reports of B.L. Oxenham from Gympie and G. Purss from Kingaroy, (A.P.D.R. 9:2:11, 1957).

When the first field outbreak was reported from the Queensland Bureau of Investigation irrigation farm at Lawes in 1955, severe symptoms were evident on red clover and a very high percentage of infection was recorded on that species. Only a few white clover plants in the vicinity showed any signs of infection. Over the following summer, when almost all of the red clover had been killed out by the rugose leaf curl virus, practically 100 per cent of the white clover plants in an adjacent field were affected by the disease. By April, 1956, these plants were still stunted and not normal in appearance, but few of them were showing symptoms that were easily identified as being caused by the rugose leaf curl virus.

During late October and early November 1956, the same area at Lawes was inspected. Symptoms of the disease were identified on red clover, white clover and lucerne; and a strain of subterranean clover showed doubtful symptoms. Unfortunately, the subterranean clover was haying off and the plants died before they could be tested for the presence of rugose leaf curl. During the next week, rugose leaf curl symptoms were seen on red clover, white clover and lucerne at Brian Pastures Research Station, Gayndah, near Gympie, at Anamoor, Kenilworth and north of Nambour. It is certain that rugose leaf curl is a limiting factor in the usefulness of these pasture legumes, in the areas mentioned, and probably in others from which no reports have been received.

The leafhopper vector, Austroagallia torrida Evans was found to be prevalent in all of the areas mentioned above during October and November 1956. Field observations of leafhopper populations made in areas along the Lachlan River, at Richmond, N.S.W., and in the A.C.T. from 1947 to 1950 showed that Austroagallia torrida does not occur in these areas in large numbers excepting during April and May. It would appear that the leafhopper vector has a longer active life in the sub-tropical climate and is thus of much greater importance in Northern areas.

N.E. GRYLLS

C.S.I.R.O.,
Canberra.

VEGETABLES.

MOSAIC IN SILVER BEET:

In July of this year the incidence of beet mosaic in silver beet (Beta vulgaris var. cicla), was higher than usual. Much of the leaf was unsaleable as the quality was lowered by the conspicuous mottle and by the development of necrotic patches on some chlorotic areas. The losses assumed even greater significance with high prices for silver beet due to shortage of other green vegetables, following subnormal July temperatures.

An examination of 20 market gardens in the Osborne Park area, showed a marked correlation between high mosaic incidence and the prevalence of weeds in the near vicinity, combined with poor garden hygiene. This suggested that a build up and migration of aphid vectors from such areas, to adjacent silver beet crops had occurred in the late autumn and early winter.

In the worst affected crops, 80 to 90 per cent of plants were affected and virtually no attempt had been made at weed control or disposal of refuse in old vegetable beds.

By contrast, those crops showing only trace amounts of mosaic had been kept weed free and were excellent examples of good garden hygiene.

In one garden, the only mosaic occurrence was at the end of the plot, adjacent to a neighbour's fence line, beyond which weeds were growing freely.

The incidence of the disease could not be consistently correlated with any other factor, and it would appear, from these observations, that weed control and good hygience were alone sufficient to reduce the disease to negligible proportions.

Transmission to silver beet and spinach by sap inoculation was only effected by "fairly hard rubbing", as suggested by K.M. Smith (Textbook of Plant Virus Diseases, 1957) The disease was reproduced in all eight replicates of silver beet, and in all three replicates of spinach.

Dept. of Agriculture,
Perth.

- H.L. HARVEY.

RUST OF SILVER BEET:

A specimen of silver beet infected by rust, Uromyces betae (Pers.) Kuehn, was received recently from a garden at Revesby, near Sydney. This disease is very rarely seen in N.S.W., although it was first reported by McAlpine (Rusts of Australia) in 1895.

- J. WALKER.

Department of Agriculture,
Sydney.

COLLETOTRICHUM PHOMOIDES AND DIDYMELLA LYCOPERSICAE RECORDED ON TOMATOES IN TASMANIA:

Tomato fruit collected in April 1957 from Launceston were affected by a black wet rot with pink spore masses being exuded from immersed brown pycnidia. The fungus isolated from these fruit produced a brown dry necrosis when inoculated into stems and petioles of mature tomato plants. Black pycnidia were produced at the point of inoculation after 14-16 days. The fungus was reisolated from these lesions.

Measurements of spores taken from infected plants (no fruiting bodies were formed by the fungus in culture) were 5.7u ± 1.4u (range 3.4 - 9.1u) X 2.3u, approximately 17% of the cells having a single septum and the rest non-septate.

The fungus was identified as the imperfect stage of Didymella lycopersicae, this being the first record in Tasmania.

Tomato fruits collected near Hobart in March 1957 were also affected by a black wet rot on the sides of the fruit.

The fungus isolated from these fruits was inoculated into the stems of tomato plants where it produced an extensive dry collapse of the cortex for 5 - 13 cms. on either side of the point of inoculation. The fungus was reisolated from these areas.

The fungus was identified as Colletotrichum phomoides. Spore measurements were 15.4u ± 1.5u (range 26.6 to 10.6u) X 2.4u. This is also the first record in Tasmania.

- I.D. GEARD

Department of Agriculture,

Hobart.

FRUIT.

A GALL PRODUCING VIRUS OF ROUGH LEMON:

During 1955 surveys were conducted by Entomologists of the N.S.W. Department of Agriculture, to determine the extent of cirtus gall wasp infestation in the environs of Sydney. In the course of these surveys numbers of seedling trees of rough lemon in home gardens in the Dee Why area were found to carry galls not due to gall wasp. These galls varied from less than pea-size on year old growth to quite large knobbed, woody outgrowths on main branches and trunk. Subsequently a similar development was reported on naturalised seedling rough lemons in the McDonald River area (Central Coast). Since then galls have neen seen on the rough lemon stocks of orange trees at Pitt Town, Somersby and Kurrajong. In these cases no sign of gall development could be found on the scion, and there was no apparent detrimental effect on tree health.

Rough lemon seedlings were inoculated with buds taken from affected lemon trees in January, 1956. By September, 1957, the inoculated seedlings had developed prominent woody galls on main stem, branches and several roots.

- LILIAN R. FRASER.

Department of Agriculture,

Sydney.

A BUD-UNION DISORDER OF EUREKA LEMON ON TRIFOLIATA STOCK:

In N.S.W. all known Eureka lemons on trifoliata stock in commercial orchards are affected with scalybutt virus. In an attempt to obtain scalybutt-free Eureka trees a number of nucellar selections have been worked on to trifoliata stock. Four of these selections totalling 56 trees in the orchard of the Yanco Experiment Farm are now eight years old. Their growth and cropping has been good, as compared with scalybutt infected old line Eurekas and no sign of scalybutt is evident. However, during the past autumn and winter many of these trees became rather yellow and leaf fall was severe. An examination of the butts has revealed the presence of a ring of yellow gum at the bud union. In some trees the ring was discontinuous and restricted to the inner bark, but in the more severely affected trees a continuous ring was present, extending, in some cases, into the wood. This was associated with a slight ridging due to incipient scion overgrowth, and an indented ring in the wood surface at the bud union.

The condition is suggestive of the bud union disorder affecting Eureka lemons on Troyer citrange and trifoliata recently described by Weathers et al (Cal. Citrog. 40: p.427) in California. It is of interest that no scalybutt infected Eureka lemons on trifoliata showed this condition.

- LILIAN R. FRASER.

Department of Agriculture,

Sydney.

ORNAMENTALS.

DAFFODIL ROOT-ROT CAUSED BY PRATYLENCHUS PENETRANS:

Early in September attention was drawn to a planting of daffodils at South Perth, in which several patches were showing severe stunting and yellowing of the foliage, whereas neighbouring plants were relatively healthy.

The grower stated that he had noted the condition previously in the same areas. The distribution was independent of variety.

Examination of the root system showed severe rotting, involving almost the entire root system in badly affected plants. Less severely affected ones showed reddish brown oval lesions from which Pratylenchus penetrans was obtained in considerable numbers.

This nematode has been recorded as a primary parasite of bulbs in Holland (Nematologica 1 : 3 : 182). P. penetrans has been recorded on apple trees in the Manjimup district, but this is the first time it has been recorded on daffodils in this State, and its distribution and local importance on this host are not yet known.

- OLGA M. GOSS.

Department of Agriculture,

Perth.

COLLAR ROT OF PANSY:

Specimens of pansy showing collar rot were received from Grafton, on the North Coast, during March, 1957. Phytophthora parasitica Dast. was isolated from the lesions.

In pathogenicity tests the most common symptom induced was a root rot, but under particularly favourable conditions for fungal development, a vascular wilt occurred. This appears to be the first record of a Phytophthora attacking pansy.

- P. KABLE.

Department of Agriculture,
Sydney.